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# SAFETY DEVICE FOR SWINGING DOORS

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The present invention relates to safety devices for use with swinging doors.

Swinging doors, when open, expose a space at the rearward or hinged edge of the door, which closes when the door is closed, and this is occasionally a source of injury particularly to children, and especially so when such doors are automatically actuated. Usually the injuries are occasioned by a finger or hand being trapped between the rearward edge of the door and the jamb when the door closes, such that the hand is subjected to a rather severe crushing force.

One object of the invention is to provide an improved swinging door assembly in which protection against the insertion of fingers into a gap between the hinge edge of a swinging door and an adjacent door jamb is afforded by finger excluding structure positioned and mounted in an improved manner which completely conceals the mounting means for the excluding structure while at the same time increasing the inherent serviceability and durability of the excluding structure.

A further object is to provide a swinging door assembly in which an improved construction achieves the above recited object while at the same time providing for quick and easy attachment and detachment of the finger excluding structure which bridges the gap between the door and the door jamb.

Other objects and advantages will become apparent from the following description of preferred embodiments of my invention which is illustrated in the accompanying drawings.

In the drawings, in which similar characters of reference refer to similar parts throughout the several views:

Figure 1 is a front elevation of the lower rear corner of a door and the associated door jamb, showing the general appearance of the door and jamb with the safety accessory which forms the subject matter of the present invention installed;

Fig. 2 is a horizontal sectional view of the rearward portion of a center pivot swinging door and the associated jamb equipped with my safety device;

Fig. 3 is a top view of the rear portion of an offset pivot door and associated jamb having my safety device thereon; and

Fig. 4 is a view similar to Fig. 3 but showing an alternative form the invention may take.

Referring initially to Figs. 1 and 2 of the drawing, I have shown a center pivoted door at **10** with the pivoting axis located approximately at **12**. This door is of the conventional metal type and it is associated with a jamb **14**. Were it not for the protective device shown in these figures it will be appreciated that as the door is pivoted about the axis **12** to open position, which ordinarily is from 90° to approximately 105°, a considerable gap will be opened between the rearward edge of the door **16** and the face or edge of the jamb **14**. This gap is wide enough to permit the easy inadvertent insertion of a hand or portion thereof, such that serious injury could result when the door is subsequently closed.



To afford protection against this type injury I apply to the front and back face of the door, in a position near the rearward edge thereof, a vertically extending anchor channel member **18**. This channel member may most conveniently be formed as an extrusion of aluminum for instance, and has a flat portion **20** which is secured against the face of the door by self-tapping or sheet metal screws **22**. If it is used with wood doors, wood screws may of course be used. The anchor strip **18** is so formed as to have an overhanging lip portion **24** terminating in a rib or hook **26** which extends inwardly toward the face of the door a short distance. The overhanging lip **24** extends away from the rearward edge of the door as shown in Fig. 2.

Identical strips **18** are also attached to the door jamb on the front and back sides of the door near the outer edges of the jamb and in any event far enough outwardly from the rearward edge of the door so that there will be no interference between the rearward edge of the door and these anchor strips when the door is swung.

A generally rectangular, finger excluding strip **30** is provided at each of its vertical edges with hollow collapsible beads **32** which are adapted to be pushed past the anchor lip **26** in face to face contact with the surface of the door **10** or jamb **14** until an outward projection upon the bead snaps into place behind the lip **26** thereby inhibiting withdrawal of the bead from the anchor strip **18**. The pliable member **30**, for the sake of appearance, preferably extends from top to bottom of the door and thus as the door swings, the pliable member **30** will distort so as to accommodate this movement. Ordinarily when the door is closed, the member **30** will have a substantially cylindrical contour in so far as the surface seen by an observer is concerned.

Although any of several materials may be used for forming the member **30**, I prefer to use a plastic polyvinyl chloride extrusion and I prefer that it be vertically fluted as shown at **34**. This fluting is attractive in appearance and additionally contributes to the flexibility of the member, particularly in distributing the flexibility throughout the horizontal length of the member rather than concentrating the bending action to a few regions, and yet the member retains sufficient rigidity to prevent a child from pushing it inwardly sufficiently to get a portion of the hand trapped within the slot between the rearward edge of the door and the door jamb. The horizontal width of the member **30** from one vertical edge to the other is to some extent a matter of choice, but I prefer that it have a developed width of approximately eight inches, since I have found that such length will accommodate almost all types of doors and hinging arrangements in general use.

Referring now to Fig. 3 of the drawings which shows a door having an offset pivot, the door jamb in this instance is indicated at **40** and as is customary is equipped with a stop **42**. The door is indicated at **44** and has an offset hinge pivot positioned at **46**. With this arrangement the installation on the side of the door away from the pivot is almost the same as previously described in connection with the center pivoted door, excepting that the anchor strip **18** is attached to the door in a position slightly farther from the rearward edge thereof, and the similar strip secured to the door jamb is preferably attached directly to the stop **42**. As in the previous example, the flexible member **30** is secured in place after the retaining strips **18** have been attached by pushing the beads at the vertical edges thereof past the hooked edge of the retaining strips until the bead snaps in place.

At the opposite side of the door, the member **30** passes over the pivot **46** at its center and is attached by the strips **18** which are secured to the face of the door and to the face of the jamb in positions which are about